



Modeling, Analysis, Predictions, and Projections (MAPP) Program

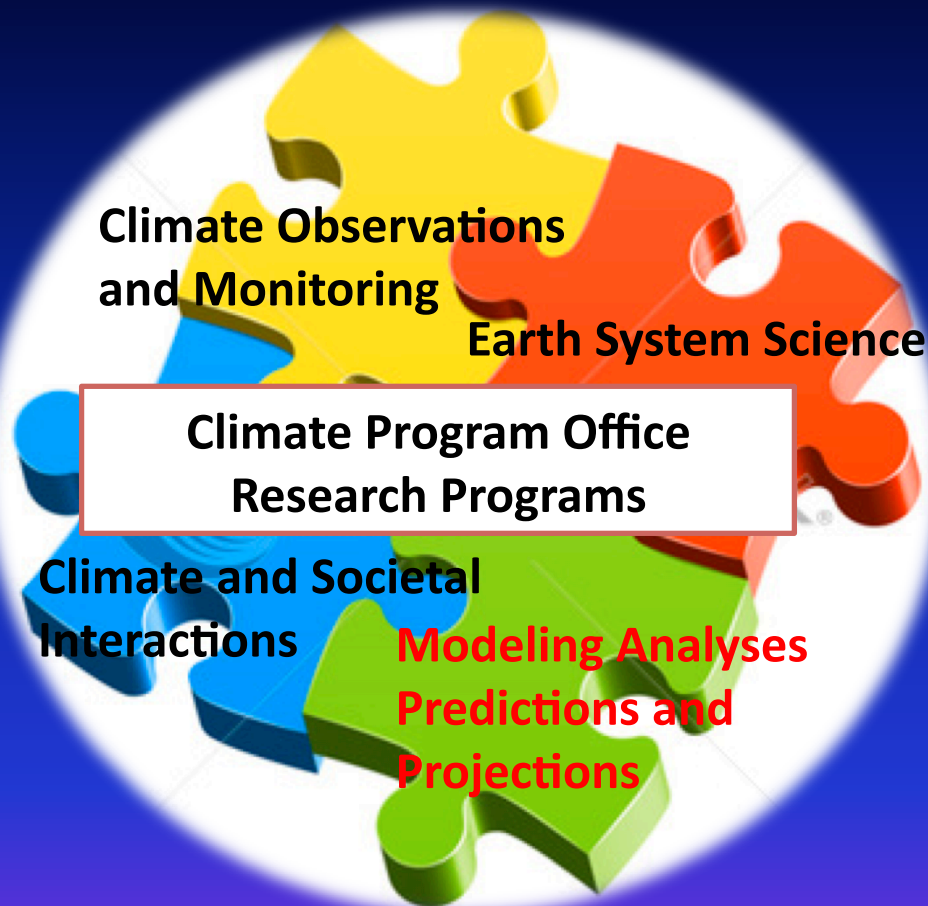
Don Anderson, Annarita Mariotti and Dan Barrie
NOAA, Climate Program Office



Modeling, Analysis, Predictions, and Projections Program

Don Anderson, Program Lead

Annarita Mariotti, Deputy Program lead



- MAPP Program is one of 4 CPO research programs contributing to NOAA's Climate Goal
- Builds upon the CPPA and CDEP predecessor programs
- MAPP contributes to USGCRP and WCRP



Modeling, Analysis, Predictions, and Projections Program

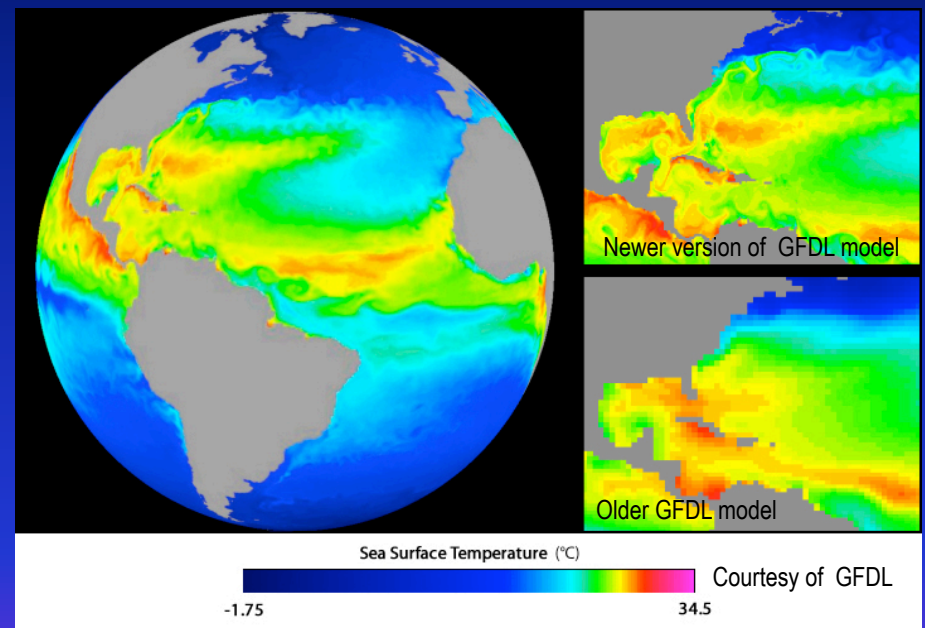
MAPP Program's Mission:

To enhance the Nation's capability to understand and predict natural variability and changes in Earth's climate system

MAPP supports development of advanced climate modeling technologies to improve simulation of climate variability, prediction of future climate variations from weeks to decades, and projection of long-term future climate conditions.

Primary objectives include:

1. Improvement of Earth system models
2. Developing an Integrated Earth system analysis capability
3. Improvement in methodologies for global to regional-scale analysis, predictions, and projections
4. Development of integrated assessment and prediction capabilities relevant to decision makers based on climate analyses, predictions, and projections





Modeling, Analysis, Predictions, and Projections Program

MAPP Program Implementation

- Annual MAPP Program call for competitive research proposals
- In FY11 ~80% of MAPP's budget for competitive research, both intra-mural and extramural
- Priorities are aligned with NOAA's AGM/the Climate Goal and coordinated with other CPO programs, in particular the NIDIS program; NOAA labs ; other federal agencies as part of USGCRP; and the broader research community, as part of WCRP.



Modeling, Analysis, Predictions, and Projections Program

MAPP Program Implementation

- **A Drought Task Force**

Brings together scientists whose MAPP-funded research in the framework of CMIP5 (Coupled Model Intercomparison Project – Phase 5) aims at evaluating simulations of the 20th century climate and the uncertainties in long-term predictions and projection of twenty-first century climate over North America.

- **A CMIP5 Task Force**

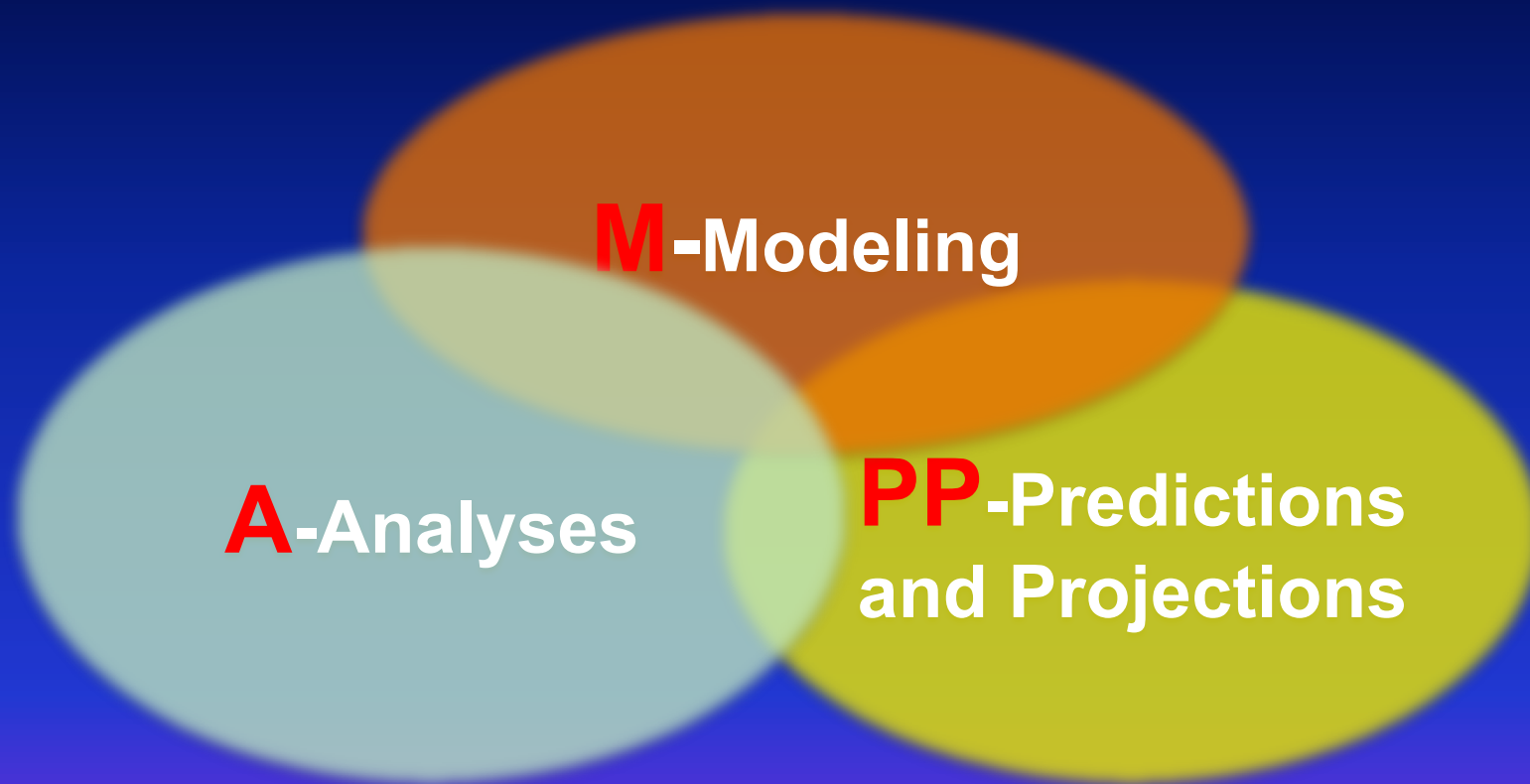
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- **A webinar series**

An opportunity for MAPP Program PIs to present their work.



MAPP Program Key Activities



Program Activities – A FY11 Snapshot

Evaluating CMIP5 Predictions and Projections for IPCC AR5

Climate Model Evaluation and improvement

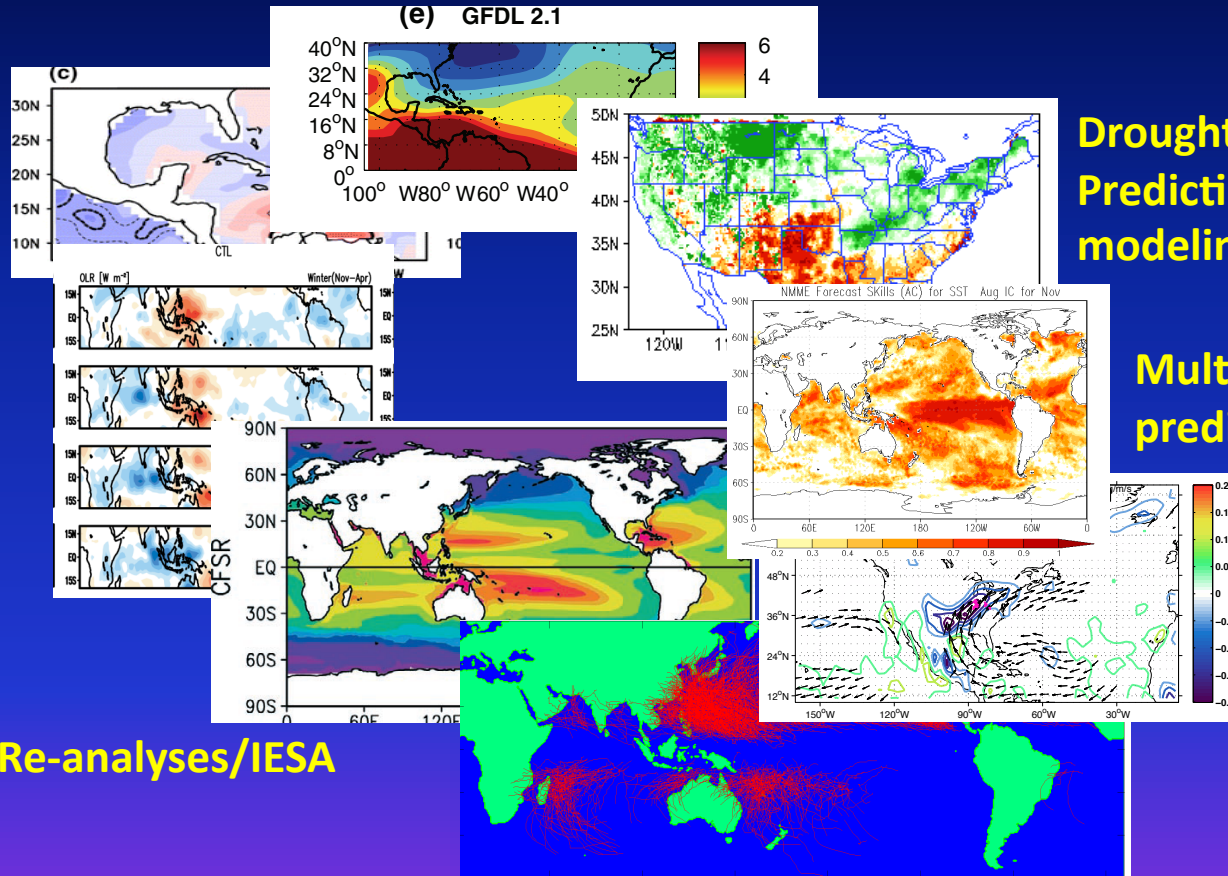
MJO understanding and modeling

Re-analyses/IESA

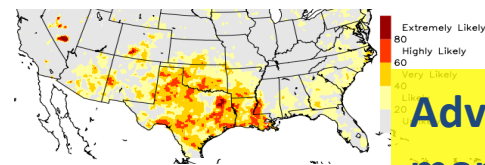
Drought Monitoring and Prediction/hydrologic modeling

Multi-model climate prediction

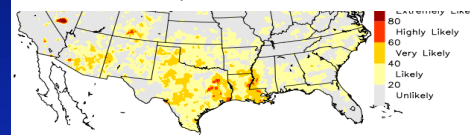
Regional-scale/high-resolution modeling



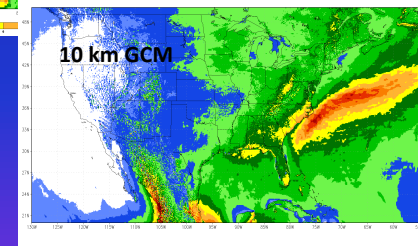
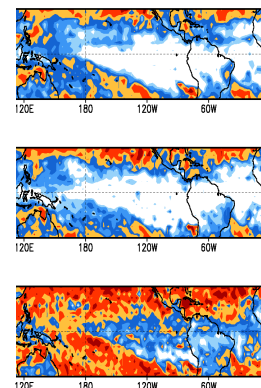
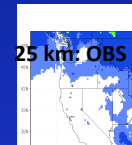
Global Climate Model improvement



Drought Prediction for Sept 2011
initialized 1-July 2011



High resolution/regional climate modeling prototypes





Modeling, Analysis, Predictions, and Projections Program

Current/near future MAPP priority areas

FY11

MAPP Program has initiated the following new research activities:

- Bring significant new advances in regional scale predictions **and projections**. This includes research to advance global high resolution modeling and assess uncertainties in regional scale projections for IPCC AR5.
- **Develop an Integrated Drought Prediction Capability**. This builds on previous research to develop an experimental drought prediction capability.
- **Evaluate Recently Developed Reanalysis Projects**. Research will provide a broad examination of newly developed re-analyses projects, specifically the CFSR and the 20CR released in 2010.



Modeling, Analysis, Predictions, and Projections Program

Current/near future MAPP priority areas

FY12

MAPP Program is planning the following new research activities:

- Advance intra-seasonal to decadal climate prediction - evaluate and improve climate prediction methodologies.
- Develop an experimental National Multi-Model Ensemble climate prediction system – develop and evaluate a multi-model ensemble system for intraseasonal to interannual climate prediction.
- Modeling of Intra-Americas Sea climate processes associated with extremes over North America – improving climate model simulation and prediction of extremes over North America focusing on processes in the Intra-Americas Sea region.